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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/852,317	05/08/2001	Keon-Hoe Cha	51876p246	4709

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EXAMINER
THAI, HANH B

ART UNIT	PAPER NUMBER
2171	4

DATE MAILED: 09/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/852,317	CHA ET AL.	
	Examiner	Art Unit	
	Hanh B Thai	2171	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 May 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 May 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

This is in response to the application filed May 8, 2001 in which claims 1-22 are presented for examination.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed May 8, 2001 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Objections

2. Claims 1, 5 and 13 are objected to because of the following informalities:

- Regarding claim 1, the "semicolon" on line 5 should be replaced with "colon".
- Regarding claim 5, the "a" on line 15 should be replaced with "an".
- Regarding claim 13, the "anther" on line 16 should be replaced with "another". The noun "distance" on line 19 needs an article in front of it. And "y" on line 22 should be "node y".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention. Specifically, it is not clear what the "semantic structure" is. In the interest of compact prosecution, it is assumed that "semantic structure" is a "semantic relation".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

35 U.S.C. § 102(e), as revised by the AIPA and H.R. 2215, applies to all qualifying references, except when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. For such patents, the prior art date is determined under 35 U.S.C. § 102(e) as it existed prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. § 102(e)).

4. Claims 5-7, 9, 14-16, 18-19, 20-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Paik et al. (U. S. Patent no. 6,076,088), provided by the Applicant.

Regarding claims 5 and 20, Paik discloses a method for generating and retrieving information for use in an apparatus for generating and retrieving information based on standardized formats of sentence structure and semantic structure, the method comprising the steps of:

- transforming a natural language sentence (information and knowledge) described by a information provider to a conceptual graph depending on

standardized formats of sentence structure and semantic structure and indexing the conceptual graph (see col. 8, lines 59-67 and col. 20, line 59 to col. 21 line 6, Paik); and

- transforming a natural language query sentence inputted from a user to a conceptual graph depending on the standardized formats of sentence structure and semantic structure and searching information relevant to the requirement of the user among the indexed information (see col. 9, line63 to col. 10, line7 and col. 20, line 59 to col. 21 line 6, Paik).

Regarding claims 6, Paik further discloses the steps of:

- generating a sentence in which ambiguities of the sentence structure and the semantic structure of the sentence inputted by the information provider depending on the standardized formats of sentence structure and semantic structure (see col. 8, lines 49-53, Paik);
- transforming the generated sentence to the conceptual graph by sentence analysis and semantic analysis (see col.8, lines 59-67 and col. 20, lines 59-65, Paik); and
- "transforming the transformed conceptual graph to a record of a table by a relation node and indexing the record" corresponds to the transforming of concept relation concept to the form that stored in the database (see col. 21, lines 22-27, Paik).

Regarding claims 7 and 16, Paik further discloses a sentence relevant to the standardized formats of sentence structure and semantic structure by generating information for information

transaction to guide the user to make the sentence from the user have the standardized format (see col. 9, line63 to col. 10, line7 and col. 20, line 59 to col. 21 line 6, Paik).

Regarding claim 9, Paik further discloses the steps of:

- analyzing the sentence structure and the semantic structure of the natural language query sentence received from the user and transforming the sentence to a conceptual graph (see col. 8, lines 49-67; col. 9, lines 44-62 and col. 20, lines 58-65, Paik);
- computing the semantic relevance by searching the semantically nearest conceptual graph at conceptual graph of the query (see col. 22, lines 14-32, Paik; and
- extracting information indexed by the searched conceptual graph to provide to the user (see col. 14, lines 17-29 and col. 22, lines 53-58, Paik).

Regarding claims 14 and 19, Paik further discloses information stored and retrieved with respect to semantic relation by partitioning the semantic structure graph and information and document nearest to the request information specification of the user is retrieved by using the semantic relevance between concepts by a noun thesaurus system (see col. 22, lines 14-33 and col. 13, lines 1-5, Pialk).

Regarding claims 15 and 21, Paik discloses an information generating method for use in an information generating apparatus based on standardized formats of sentence structure and semantic structure, the method comprising the steps of:

- generating a sentence which ambiguities in sentence structure and semantic structure are solved depending on the standardized formats of sentence structure

and semantic structure from a natural language sentence inputted by a information provider (see col. 12, line 44 to col. 13, line 24, Paik);

- transforming the generated sentence to a conceptual sentence analysis and semantic analysis (see col.8, lines 59-67 and col. 20, lines 59-65, Paik); and
- "transforming the transformed conceptual graph to a record of a table by a relation node and indexing the record" corresponds to the transforming of concept relation concept to the form that stored in the database (see col. 21, lines 22-27, Paik).

Regarding claims 18 and 22, Paik discloses an information retrieving method for use based on standardized structure, the method retrieving apparatus structure and semantic comprising the steps of:

- analyzing sentence structure in an formats and semantic structure of a natural language query sentence received from a user transform it to a conceptual graph (see col. 8, lines 49-67; col. 9, lines 44-62 and col. 20, lines 58-65, Paik);
- searching a conceptual graph in a database semantically nearest to the conceptual graph of the query and computing semantic relevance (see col. 22, lines 14-32, Paik); and
- retrieving indexed information by the searched conceptual graph and provide it to the user (see col. 22, lines 53-58, Paik).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-4, 8, 10-12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paik et al. (U. S. Patent no. 6,076,088) in view of de Hita et al. (U. S. Patent no. 6,081,774).

Regarding claims 1, 4, 8 and 17, Paik discloses an apparatus for generating and retrieving information based on standardized formats of sentence structure and semantic structure, the apparatus comprising;

- a data storing means (see "Data Storage" 35, Fig.1, Paik) for storing language knowledge data used to analyze a sentence for information supply and a query for information request from a user, semantic representation data for representing sense of sentence as a conceptual graph, and Web documents (see col. 8, lines 49-67 and col. 20, lines 58-65, Paik);
- an input means for receiving a natural language query sentence for generation of a natural language sentence for information supply and specification of information request from the user (see col. 9, lines 3-8 and 16-28, Paik);
- an input sentence analyzing means for analyzing sentence structure of the natural language sentence or the natural language query sentence inputted from the user with reference to data stored at the data storing means to generate semantic structure (see col. 8, lines 9-29 and col. 49-58, Paik); input "query" corresponds to "input sentence".
- semantic structure processing means for partitioning the semantic structure analyzed by the input sentence analyzing means to index and store or for

computing semantic relevance to search supply information and document most semantically relevant to the requested information specification (see col. 9, lines 44-62, Paik);

- an interactive processing means for outputting sentence format rule (see col. 9, lines 16-25, Paik); and
- an information transferring means for transferring the data from the interactive processing means to the user (see col. 8, lines 13-18, Paik).

Paik, however, does not explicitly disclose "... failure data from the input sentence analyzing means is corrected". de Hita, on the other hand, discloses the detection the misspelling words from the input text (see col. 17, lines 35-54, de Hita). Therefore, it would have been obvious to one of ordinary skill in the art to include the claimed feature in the system of Paik in order to accurately detect and correct the misspelling error from the input.

Regarding claim 2, Paik/ de Hita combination further discloses the apparatus whereas the input sentence analyzing means receives the sentence inputted from the user (see col. 9, lines 19-23 and 44-51, Paik), sequentially analyzing it by comparing it with data of lexicon storing means (see col. 8, lines 51-55, Paik), predicate case frame storing means and noun thesaurus storing means included in the data storing means (see col. 6, lines 40-46, Paik), morphologically analyzes at a morphological analyzer, parses at a parser to generate a sentence structure tree, and performs semantic analysis at a semantic structure generator to generate the semantic structure (see col. 9, lines 44-51 and col. 12, lines 44-52, Paik).

Regarding claim 3, Paik/de Hita combination further discloses semantic structure processing means includes:

- a conceptual graph transformer for conceptual graph outputted from the generator depending on semantic relation (see col. 20, line66 to col. 21, line6, Paik);
- a conceptual graph indexer (see "Unit Indexer" 245, Fig.5, Paik) for indexing the Web documents including the supply information of the user by using a record of a conceptual pair related with each relation transformed by the conceptual graph transformer (see col. 6, lines 6-17 and col. 13, lines 34-40, Paik). "Unit Indexer" corresponds to "conceptual graph indexer"; and
- a conceptual graph searcher for searching the supply information having highest semantic relevance between the semantic structure of the user's query and the stored semantic structure (see col. 9, lines 52-62 and col. 22, lines 15-44 , Paik).

Regarding claim 10, Paik/de Hita further discloses the step for transforming the natural language sentence (information and knowledge) described by the information provider and the natural language query sentence inputted from the user to the conceptual graph depending on the standardized formats of sentence structure and semantic structure includes the steps of:

- morphologically analyzing the natural language sentence by a morphological analyzer when the natural language sentence for information to be provided by the information provider or to be supplied to the information provider and checking whether morphological analysis is performed successfully (see col. 18, lines 22-61, de Hita);
- if morphological analysis fails, generating failure type data depending failure type, and if morphological analysis is performed successfully, analyzing the

sentence structure by using the morphological analysis result (see col. 17, lines 35-53, de Hita); transforming the sentence analysis tree to the semantic structure depending on the generation of the analyzed sentence structure; and inputting the semantic structure to a conceptual graph transformer depending on appropriateness of the semantic structure for the standardized format (see col. 17, lines 11-34, de Hita).

Regarding claim 11, Paik/de Hita further discloses the steps of:

- receiving from a semantic structure generator a sentence tree (T) in which ambiguities of the sentence structure is solved and transforming the sentence tree (T) to pre-stage conceptual graph (P-CG) depending on a tree transformation rule (see col. 19, lines 1-37, de Hita);
- searching information to be processed as a referent from the using a numeral and definitive processing rule to define as the referent and processing the conceptual node by setting a proper noun and the tense as type information of the concept by using a thesaurus system, in order to transform the transformed P-CG to a conceptual graph in which the semantic ambiguities are solved; and after the concept node processing, generating a conceptual graph of a final semantic structure by determining relation between concept nodes by the thesaurus system and frame information (see col. Col. 4, lines 40-64, de Hita).

Regarding claim 12, Paik/de Hita further discloses "the topic level" and "topic priority" correspond to node level and relation node which depending on the priority rule of the language for the determined priority nodes (see col. 27, lines 20-45 and Summary of de Hita).

Allowable Subject Matter

6. Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: the prior art fails to disclose or suggest the claimed provision "semantic relevance (S (x, y)) is a distance from a node x to another node y in the thesaurus system and can be expressed as follows.

$S(x,y) = 1 / (1 + d(x,y))$

where d (x, y) is the distance from the node x to the node y in the thesaurus system, is 0 if the y is one of lower nodes and is computed as the number of edges between the nodes if otherwise." as claimed in conjunction with remaining claims provisions.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Foltz et al. (U.S. 6,356,864) disclose Methods for analysis and evaluation of the semantic content of a writing based on vector length.
- Datig (U. S. 6,233,546) discloses Method and system for machine translation using epistemic moments and stored dictionary entries.
- Budzinski (U. S. 5,715,468) discloses Memory system for storing and retrieving experience and knowledge with natural language.

- Dolby et al. (U.S. 5,630,025) disclose Generalized configurator using a declaratively constructed two-level bi-partite graph as a knowledge Representation.
- McGregor (U. S. 5,471,611) discloses Computerised information-retrieval database systems.
- Liddy et al. (U. S. 5,963,940) disclose Natural language information retrieval system and method.
- Preston (U. S. 6,446,081) discloses Data input and retrieval apparatus.Tesler (U. S. 6,259,451) discloses Method, system, and computer program product for mapping between an overview and a partial hierarchy.
- Kirk et al. (U. S. 5,768,578) disclose User interface for information retrieval system.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh B Thai whose telephone number is 703-305-4883. The examiner can normally be reached on 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on 703-308-1436. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

U. LE
PRIMARY EXAMINER
AU 2171

Hanh Thai HT
Art Unit 2171
August 28, 2003